

PDS Data Review –Tony Farnham

LORRI Cosmic Optical Background

Oct 19, 2022

# Data Set

- Used NH LORRI data to measure the Cosmic Optical Background
  - Measurements from checkout and cruise phases
  - Very large distance from the Sun minimizes contamination from Earth-based sources and interplanetary dust
  - Data come from PDS archive
  - Remove stars and other “contamination” to allow background measurement
- 1012 fits files, each with 2 extensions and an XML label
- Documentation
  - Minimal overview document
  - Preprint of a paper describing the processing done and the results of the measurements

# General Comments

- Overall, data seems to be in good shape
- Could use a little more documentation

# Documentation

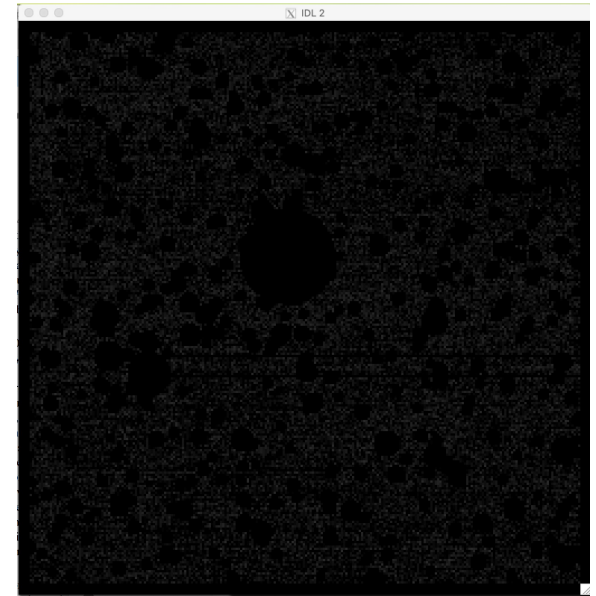
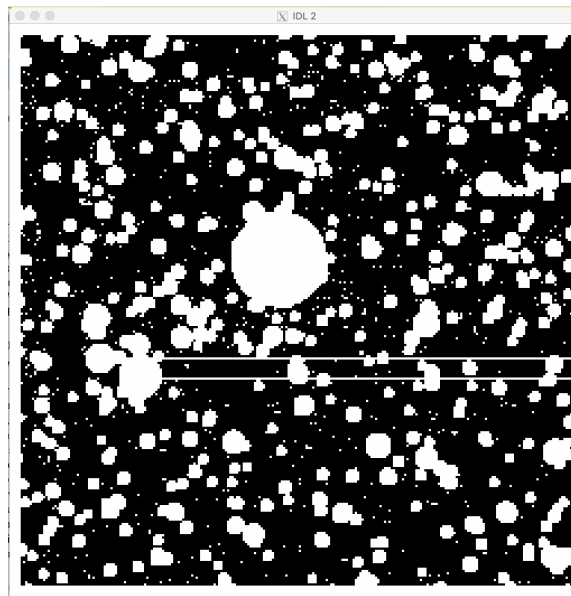
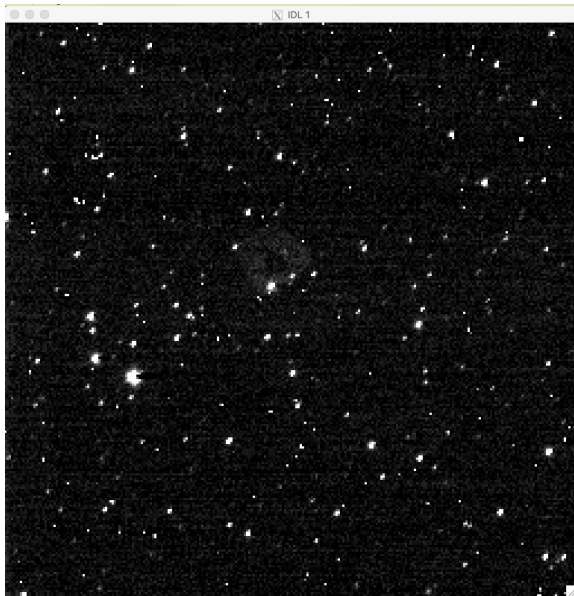
- Overview. document is well-written and helpful for understanding the data
  - First paragraph is limited to 80 characters per line, second paragraph has one continuous line
  - Could use a little more description of the data and how they were used
    - What criteria were used to select the files? Are they dedicated observations or are they using observations obtained for other purposes?
  - Should reference the paper/preprint document for more details
- INVENTORY.CSV file
  - Filenames have a “\_” before “fit”, rather than a “.”
- Spot-checked XML labels
  - In general look like the labels from the original data (targets include KBOs etc)

# Documentation – Paper/Preprint

- Describes the data processing and analysis in more detail
- Dates/positions for four fields used in the analysis are given in Table 1
  - Header says declination is in hh:mm:ss (should be degrees...)
  - Why was the analysis limited to only 4 fields when 1012 at different times are included in the dataset?
  - None of the RA/Dec combinations match the RA/Dec of the data files.

# Data

- Data are in good shape
  - Read with IDL FITS readers and PDS\_READ
  - Read and displayed every image
  - Tested to make sure data could be manipulated and measured



# Data Manipulation

- Attempted to reproduce the background values in the paper
  - Applied the mask to a number of test images
  - Took the average of the remaining pixels
  - Obtained average values 35 – 60 in 10 sec images
  - Paper found a values ranging from ~20 - 110
    - Used a more complex statistical measurement
    - Used different data sets?

# Summary

- Data are in good shape
- Additional documentation if possible
- Otherwise, the data are certifiable